AAUW

DELL

PLAYBOOK

ON BEST PRACTICES

Gender Equity in Tech

[INTRODUCTION]

AAUW works to empower women and girls to achieve their highest potential in education and the workplace. Gender equity is essential for families, children, and our nation: When everyone has the same incentives and opportunities, we all benefit from increased diversity, greater creativity and innovation from a larger talent pool, more financial stability for families, and a stronger economy at all levels.

Since AAUW's founding in 1881, we've been at the forefront of the movement for women and girls in STEM, breaking new ground and dismantling stereotypes. Through hands-on educational programs, innovative research, and meaningful advocacy, we've helped many women—from scientist Marie Curie to astronauts Judith Resnik, Ph.D., and Mae Jemison, M.D.—unleash their potential and achieve great things.

Inspiring women in STEM is nothing new to Dell, either. The foundation of Dell's business strategy is one of diversity and inclusion to reflect the diverse, global marketplace. Dell has long held the belief that innovation can come only from a diverse workforce of creative thinkers. These creative thinkers are inspired by and come from the next generation of STEM practitioners who are actively recruited and developed at Dell. Through employee resource groups to a top-down approach in recognizing the need to establish a strong diversity mind-set in the company, Dell regularly leads the way in creating a pathway for women in STEM.

While girls are studying and excelling in science and math more than ever before,[1] this dramatic increase in educational achievement has not been matched with a similar rise in the representation of women working in these fields.[2] Today, women make up just 6 percent of S&P 500 CEOs,[3] 12 percent of the engineering workforce, and 25 percent of the computing workforce.[4]

---

[1] AAUW research report "*Why So Few? Women in Science, Technology, Engineering and Math*" http://www.aauw.org/research/why-so-few/
[2] AAUW research report "*Solving the Equation: Variables for Women's Success in Engineering and Computing*" http://www.aauw.org/research/solving-the-equation/
[3] http://fortune.com/2017/06/07/fortune-500-women-ceos/
[4] https://www.bls.gov/opub/reports/womens-databook/2016/home.htm

In 2017, AAUW and Dell convened a Summit on Gender Equity in Tech, hosting major U.S. tech companies and researchers to share knowledge and best practices to recruit, retain, and advance women in the engineering and computing professions. Now, together, we're harnessing AAUW research[5] and findings from the summit as a catalyst for action. This action combines crucial takeaways from the research, proven strategies, and promising practices being used by industry thought leaders. Employers play a critical role in improving the representation of women in tech—and this playbook equips you with actionable steps and a data-driven approach to continue promoting gender equity in tech.

Ready to do more? So are we.

[5] AAUW research reports used in this playbook include: *Why So Few? Women in Science, Technology, Engineering and Math* http://www.aauw.org/research/why-so-few/; *Solving the Equation: Variables for Women's Success in Engineering and Computing* http://www.aauw.org/research/solving-the-equation/; *Barriers and Bias: The Status of Women in Leadership* http://www.aauw.org/research/barriers-and-bias/, *What We Still Need to Know About Women in Computing and Engineering* http://www.aauw.org/event/2017/03/webinar-women-in-computing-and-engineering/; and *The Simple Truth about the Gender Pay Gap* http://www.aauw.org/resource/the-simple-truth-about-the-gender-pay-gap/

[EXECUTIVE SUMMARY]

The *Playbook* is a set of specific strategies and actions that have been shown to measurably increase the representation of women in the engineering and computing professions. These strategies and actions have either been validated by research or have been successfully used in practice. Because gender inequality is rooted in societal and cultural expectations of girls and women resulting in barriers and biases to achievement, applying one of these actions in and of itself will not achieve a measurable improvement. But, like the plays detailed in a sports team's playbook, the strategies and actions outlined here and intentionally and strategically deployed by an organization will lead to success.

The *Playbook* is divided into three sections: Support an Inclusive Talent Pipeline; Build Equity into Your Recruiting DNA; and Create and Sustain a Winning Culture for All. These sections break down and tackle some of the barriers facing girls and women in technology. Strategies are detailed providing organizations with actions to recruit, retain, and advance women in technology.

SUPPORT AN INCLUSIVE TALENT PIPELINE

The greatest challenge to gender equity in technology is to increase the number of girls interested in engineering and computing (see figure 1). Unlike past generations, girls in high school today are as likely as boys to take math and science courses, and female high school graduates are likely to have better grades in these courses than their male peers. So while there is no difference in ability to tackle technical college majors, continued stereotypes about girls' and women's abilities to achieve in technology steer girls away from choosing these as college majors.[7]

Researchers know that career choice begins in the middle school years and is influenced by parents, teachers, peers, and the media. Organizations can positively change the perception of the technology professions with intentional effort to influence parents, teachers, students, and children in their communi-

[6] AAUW research report *Barriers and Bias* http://www.aauw.org/research/barriers-and-bias/
[7] AAUW research report *Why So Few? Women in Science, Technology, Engineering and Math* http://www.aauw.org/research/why-so-few/

ties. Larger organizations can influence the media portrayals of the technical professions. This section addresses specifically how organizations can leverage their resources, including talent and products, to change the stereotypes of the engineering and computing professions to build the pipeline. Many examples of organizations already doing this work are included.

BUILD EQUITY INTO YOUR RECRUITING DNA

Attracting and recruiting top female talent is a priority in many organizations. Researchers have shown that recruitment methods can be leveraged to attract and successfully recruit more women for your organizations. This section provides strategies and actions to add women to your tech workforce. These include: using neutral language in job postings, conducting blind interviews, using panels, and having objective criteria for deciding who to hire can increase the number of women in tech.

CREATE AND SUSTAIN A WINNING CULTURE FOR ALL

The culture of tech organizations has been identified by researchers as the reason many women leave the engineering and computing professions.[8] This is especially troubling as these women professionals have spent years preparing for the workplace and have overcome many barriers and biases in achieving their professional status.

The good news is that the culture of an organization is completely controlled by the leaders and the employees within it, and we know that organizational change can occur with intentional effort. This section relies on a broad set of research studies to provide strategies to retain and advance women in tech. The actions include having high -level leaders prioritizing gender equity, defining and measuring specific goals towards gender equity, providing professional development, and addressing implicit biases.

[8] *Solving the Equation: Variables for Women's Success in Engineering and Computing* http://www.aauw.org/research/solving-the-equation/

playbook [pley – buk]

1. A plan or set of strategies
2. In team-based activities, a document containing descriptions of actions, conduct, or strategies for team members. Details the action for each player.

[TABLE OF CONTENTS]

{ ONLY 1 IN 5 }

GRADUATES IN ENGINEERING AND COMPUTING ARE WOMEN.[9]

[9] National Center for Science and Engineering Statistics, Table 6.1 https://ncsesdata.nsf.gov/us-workforce/2013/html/SES2013_DST_06_1.html

SUPPORT AN INCLUSIVE TALENT PIPELINE

You can help to build an inclusive talent pipeline by reaching out to your community and encouraging girls to consider the technical professions. In this section, we provide specific actions and strategies to build talent and to recruit a diverse pool of talent.

1. SHOWCASE YOUR ORGANIZATION WITHIN YOUR COMMUNITY.

Find opportunities to highlight your employees and your organization's products and services within your local community. These actions will help children and parents in your community better understand how and when technical organizations fulfill communal needs, which can inspire a desire to work in technical fields. Showcasing engineers and computer professionals helps bring an end to stereotypes by showing how individual engineers and computer professionals are social and social-minded. Develop programs to bring students into your place of work. Talk about your products and services in ways that show the impact of your work on the students and the greater community.

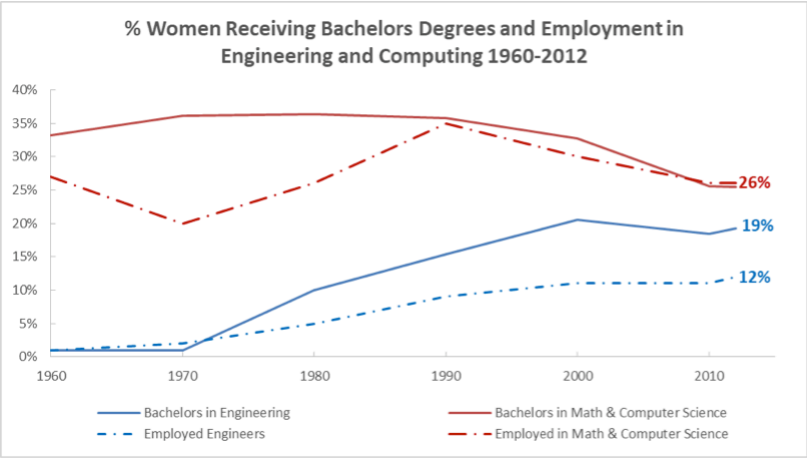
PROMISING PRACTICE: Dell in the Community

Dell's Youth Learning initiative partners with nonprofit organizations to apply Dell's technology, expertise, and volunteers in underserved communities.

2. SPONSOR EVENTS AND ORGANIZATIONS IN THE COMMUNITY THAT GENERATE AWARENESS OF AND ENTHUSIASM FOR ENGINEERING AND COMPUTING STUDENTS.

Middle school is the critical time when children begin to make decisions about career choice. Opportunities for middle school students to see, hear, and interact with engineers and computing professionals have been shown to increase their interest in tech careers.

Sponsor programs in local schools that aim to teach children how engineering and computing are used in every aspect of daily life. Support summer camps and after-school activities with the same mission. Find ways to engage parents in the community through programming designed to help them understand the benefits of engineering and computing as career choices for their children. Sponsor programs such as Science Olympiad, FIRST Robotics, Girls Who Code, and others.



Source of Data:
National Center for Science & Engineering Statistics
https://www.nsf.gov/statistics/2015/nsf15326/#chp2
Solving the Equation: The Variables for Women's Success in Engineering and Computing
http://www.aauw.org/research/solving-the-equation/

3. ENCOURAGE EMPLOYEES TO VOLUNTEER IN LOCAL SCHOOLS OR CAMPS THAT PROMOTE STEM CAREERS.

Encourage your employees to be involved in their communities. It is especially important to have technical employees involved with these programs to challenge stereotypes of technical professions. Stereotypes are diminished any time engineers and computer professionals can be shown as everyday people and as neighbors with families and children.

Support and encourage your employees to regularly visit schools, including their own children's school, and to volunteer as tutors and coaches of STEM-oriented programs.

Offer local schools access to your engineers and computer professionals to teach, tutor, or mentor students in the K–12 schools. Highlight your own products or services in these outreach programs to educate students and teachers about your organization. Provide opportunities to showcase the work that engineers and computer professionals actually do. Work with teachers to create projects that are interesting to students and programs that teach scientific principles.

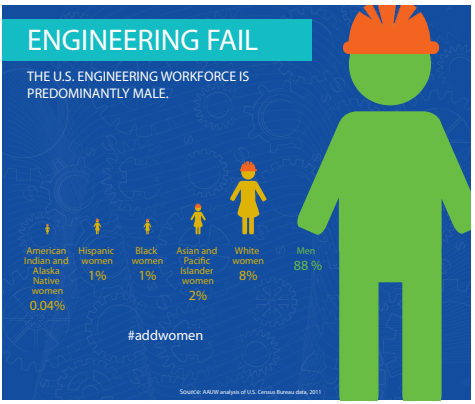
Find opportunities to publicize employee good works. Such "good works" include volunteering in the schools and at STEM-focused programs, but they could also be serving on a nonprofit board or providing other service to the community.

PROMISING PRACTICE: Dell Employees as Role Models

Dell connects employees to STEM-focused programs to help increase employee engagement, which has a positive impact on employee retention.

4. LEVERAGE YOUR RESOURCES TO PROVIDE LOCAL AND NATIONAL PUBLIC RELATIONS TO SHOW DIVERSE ENGINEERING AND COMPUTING FACES.

The characterization of engineering and computing professions in the popular media has proliferated stereotypes such as the socially awkward loner or the maniacal villain.[10] Stereotypes about the culture of these professions limit girls' career choices and perpetuate the low representation of women.[11] When girls see positive images of women professionals, they are more likely to consider these careers. A great example is the influence of Abby Sciuto from the television series *NCIS*. The "Abby Effect" has been credited with an increasing number of women choosing careers in forensics.[12]



Media remain a significant influence on a child's perceptions of the world. A Kaiser Family Foundation study found that in 2009, the average 8- to 18-year-old consumes about four-and-a-half hours of TV each day, peaking with 11- to 14-year-olds, who watch more than five hours a day. Many opportunities exist for organizations to leverage their resources to provide positive images of the workplace culture and of women engineers and computer scientists.

---

[10] Steinke, J. (2017) Adolescent Girls' STEM Identity Formation and Media Images of STEM Professionals: Considering the Influence of Contextual Cues, http://journal.frontiersin.org/article/10.3389/fpsyg.2017.00716/full

[11] Cheryan, S., Master, A. and Meltzoff (2015) Cultural Stereotypes as Gatekeepers: Increasing Girls Interest in Computer Science and Engineering by Diversifying Stereotypes http://journal.frontiersin.org/article/10.3389/fpsyg.2015.00049/full

[12] Women at Forefront of Booming Forensic Science Field, Washington Post 2012 https://www.washingtonpost.com/lifestyle/magazine/women-at-forefront-of-booming-forensic-science-field/2012/07/27/gJQAkASRPX_story.html?utm_term=.5595f8f550f9

PROMISING PRACTICE: Harnessing Media Campaigns at GE and Wrigley

Large-scale national campaigns such as GE's Balance the Equation highlight the accomplishments of technical women and show GE's intent to employ 20,000 technical women by 2020. Wrigley has been effective in targeting younger girls through projects like Sweety High, highlighting the work of female employees who oversee research and development for new candy flavors.

5. BUILD RELATIONSHIPS WITH EDUCATORS AND KEY CAMPUS PERSONNEL. Be active on the campuses where you would most like to recruit. Sponsor events with the Society of Women Engineers, Women in Engineering ProActive Network, AAUW Campus Initiatives, or other like-minded organizations focused on supporting women. Build relationships with the people working in the career center and departments like computer science and engineering.

Create programs for employees to go back to their alma maters and volunteer or recruit.

Learn about campus programs aiming to recruit and retain diverse talent. For example, such higher education institutions as Harvey Mudd College and Carnegie Mellon University are able to recruit and graduate classes with comparable numbers of women and men engineers and computer scientists.

Partner with universities and other campus initiatives focused on gender equity. The BRAID (Building, Recruiting, and Inclusion for Diversity) initiative is focused on understanding factors important to increasing gender and racial/ethnic diversity in computer science. This initiative was founded by Maria Klawe, Ph.D.,

the president of Harvey Mudd College (HMC), and Telle Whitney, Ph.D., the president and chief executive officer of the Anita Borg Institute for Women in Technology (ABI). The research team, led by UCLA's Linda Sax, Ph.D., is collecting data from students, faculty, staff, department chairs, and administrators in order to answer a variety of research questions related to the departmental change process and best practices for attracting and retaining women and students of color in computing majors. Funding for the project comes from a number of sources including organizations that employ engineers and computer scientists[13].

PROMISING PRACTICE: Gender Equity on Campus

Carnegie Mellon University has achieved gender equity in computer science. A 15-year cultural makeover in the School of Computer Science led to a gender-equal incoming class in 2016 and an 89 percent graduation rate for both men and women. Carol Frieze, Ph.D., and Jeria Quesenberry, Ph.D., detail the cultural transformations in their book, *Kicking Butt in Computer Science*. "This was not a small intervention that occurred in a few months, but a sustained effort to make a change in the culture," said Quesenberry. "Lots of people have documented the problem of low female enrollment in computer science, but you don't see a lot of sharing of success stories."

Frieze says that most people think you need to change the curriculum to suit women based on the idea that men and women relate to computer science differently. But "that's just not true," she says. Cultural factors are more influential than gender when it comes to computer science. "What's critical is that you don't marginalize women .... You integrate them into the school so that they receive the same opportunities, visibility, and networking that have worked well for most men. Integration means women can help shape the culture and environment."

[13] BRAID https://braidresearch.gseis.ucla.edu/

6. PROVIDE INTERNSHIPS AND SUMMER WORK FOR WOMEN STUDENTS.
Offer employment opportunities to women undergraduates. Ensure that these programs are well funded and have energetic, engaging sponsors and that the work is challenging. If possible, give the students roles that enable them to achieve a project or product milestone. Allow them to connect with women at all levels within your organizations and offer plenty of opportunity for dialogue.

PROMISING PRACTICE: Building a Pipeline at AT&T
AT&T's Aspire program aims to increase high school graduation rates among underserved populations. The company awards up to $10 million in grants to schools and youth development programs, especially those that use technology to motivate and empower success. With the Aspire program in mind, AT&T focuses on recruiting college freshmen interns and pairing them with more senior staff. About 70 percent of AT&T interns are STEM students; one-third are women.

7. SPONSOR EVENTS WITH STUDENT ORGANIZATIONS THAT HAVE A WOMEN MAJORITY MEMBERSHIP.

PROMISING PRACTICE: Female Role Models at Rockwell Automation
Rockwell Automation sponsors an annual event with the Case Western Reserve section of the Society for Women Engineers. Women leaders at Rockwell informally discuss their careers and take students on a tour of the facility.

BUILD EQUITY INTO YOUR RECRUITING DNA

1. USE NEUTRAL LANGUAGE AND OBJECTIVE CRITERIA IN JOB POSTINGS AND ADVERTISEMENTS.

The words used in job descriptions can be powerful influences on whether or not diverse individuals apply. Using words that are stereotypically masculine such as "competitive" or "dominate" deter women from applying.[14] Job postings that place an emphasis on ability to learn and collaborate are more likely to attract women, particularly to entry-level positions. Textio, an augmented writing platform that provides guidance on improving job postings, states that using gender-neutral language results in finding 23 percent more women.

Clarify the important job requirements by using objective criteria and using gender-neutral pronouns and adjectives. An example would be requiring a degree in mechanical engineering as opposed to "deep knowledge of mechanics." Use criteria based on successful men and women in your organization, and allow your own engineers and computer professionals to write or edit job postings.

Ensure that job postings, mission statements, and internal communications explicitly convey that your organization values diversity and gender inclusiveness.

2. ENSURE DIVERSE CANDIDATES ARE INTERVIEWED FOR OPEN POSITIONS WITHIN THE ORGANIZATION.

The National Football League leverages the "Rooney Rule" to ensure that all open positions include interviews with women and minority candidates. Etsy intentionally changed its recruiting practices to include more women and increased the representation of women engineers by 500 percent.[15] Having your own rule or policy to interview diverse candidates ensures hiring managers see candidates who are different from themselves.

---

[14]Gaucher D., Friesen J. and Kay A., (2011) ,Evidence that Gendered Wording in Job Advertisements Exists and Sustains Gender Inequality http://psycnet.apa.org/doi/10.1037/a0022530

[15]Double-Standards: How Etsy Upped its Female Engineers by 500%, Forbes 2013 https://www.forbes.com/sites/meghancasserly/2013/02/08/double-standards-how-etsy-upped-its-female-engineers-by-500/#54f681ad2f3b

3. RECRUIT FROM A BROAD, DIVERSE NETWORK OF CANDIDATES.
Recruit from a variety of different types of schools, locales, and regions. Include small, large, public, private, and community colleges, historically black colleges and universities, and women's colleges.

Look for women with associate degrees in engineering and computing to fill certain roles, and ask your current employees to recruit their classmates or friends who may be interested in your company.

Make use of the career fairs held by the Society for Women Engineers, the Anita Borg Institute Grace Hopper Celebration of Women in Computing, the National Association of Black Engineers Professional Development Conference, and other organizations that focus on women and minorities.

Be open to recruiting from a wide age range. Women may be reentering the engineering and computing labor force after taking time off for family reasons or to redirect their career. Work with organizations promoting returnships and other reentry programs such as the SWE ReEntry Program.

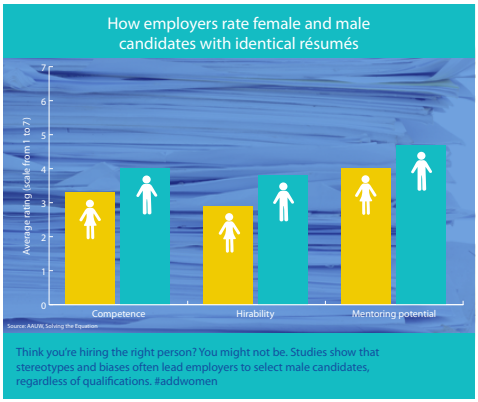
4. UPDATE RECRUITING, INTERVIEWING, AND HIRING PROCESSES.

Continuously review and update your procedures and processes involved with hiring decisions. With greater understanding of how biases impact hiring, Google has numerous suggestions for updating hiring processes on its re:Work site. Recommendations include using committees, structuring interviews, and shaping the experience so as to make each candidate experience equal.

Blind recruitment techniques are being used by companies such as BP to eliminate any bias in the process. The idea of blind recruitment techniques comes from research showing that blind auditions led to a greater proportion of women hired for symphony orchestras.[16] The television show *The Voice* uses this concept to eliminate bias due to how a singer looks. GapJumpers, Blendoor, and interviewing.io provide blind recruitment for companies interested in hiring technical workers.

Deliberately remove gender information from evaluation scenarios when possible. Use gender-neutral hypotheticals and problem-solving exercises. Base hiring decisions on objective information on past performance when possible, and allow sufficient time to make in-depth and individualized evaluations of applicants.

Ultimately, hold managers and recruiters accountable for their hiring decisions.



[16]Goldin C., and Rouse C., (1997) Orchestrating Impartiality: The Impact of Blind Auditions on Female Musicians by Claudia http://www.nber.org/papers/w5903

PROMISING PRACTICE

Even with immediate workforce needs in a highly competitive marketplace, both BP and Booz Allen Hamilton put considerable effort into ensuring workforce diversity. To strengthen outreach efforts, both companies use focus groups or stay interviews with women engineers to find out what they particularly like about their work and why they want to stay and use these responses to develop recruitment strategies. BP attributes these initiatives with a 59 percent increase in hiring women.

5. AUDIT YOUR PAY PRACTICES.

If you're interested in recruiting a more diverse workforce, ensure that your organization will support their success beyond the hiring process. Workers who believe that they are paid fairly are more likely to contribute their best effort to the job. Since benefits and subsequent raises are generally based on initial wages, a lower starting salary could mean a lifetime of lower compensation and decreased retirement benefits. Believing that an employer is fair improves employee morale[17] and may lead to higher levels of employee retention down the road.

PROMISING PRACTICE: Salesforce

In 2015, Salesforce performed a comprehensive analysis of 17,000 employees that led to salary adjustments for 6 percent of their employees and a 33 percent increase in the number of women who were promoted that year.[18]

[17] *The Simple Truth about the Gender Pay Gap* http://www.aauw.org/resource/the-simple-truth-about-the-gender-pay-gap/

[18] McGregor J. (2017), Why One Tech Giant Is Investing Another $3 Million To Close Its Pay Gap https://www.washingtonpost.com/news/on-leadership/wp/2017/04/04/why-salesforce-is-investing-another-3-million-to-close-its-pay-gap/?utm_term=.4a9bed6467f9

CREATE AND SUSTAIN
A WINNING CULTURE FOR ALL

1. ESTABLISH RECRUITMENT, RETENTION, AND ADVANCEMENT GOALS FOR WOMEN EMPLOYEES AND USE DATA AND METRICS TO TRACK PROGRESS TOWARD THEM.

Ensure that top leadership is committed to an inclusive culture and sense of belonging for everyone. Perhaps the most important and influential aspect in obtaining gender equity is having top leadership committed to the effort. Executives should consistently articulate a vision of equity within their organization and take visible steps to act on that vision. Leaders must understand the role they play in improving the organization's culture.

Be open about the representation of women within each part of the organization. Use data to share trend charts and patterns. Compare retention and promotion rates of men and women.

Use these analytics to determine what factors are linked to change. Include information such as retention data by age, gender, work classification, and work advancement data by age, gender, etc.

Reward ongoing improvement efforts related to the retention and advancement of women. Provide incentives for positive trends in retaining and advancing women in the organization. Consider using pay allocations, celebrations, or other meaningful recognition.

2. EDUCATE EVERYONE ABOUT GENDER BIAS.

Explicit and implicit biases rooted in cultural stereotypes about a woman's ability to perform technical tasks and to serve in leadership roles continue to harm women in engineering and computing. Both men and women have been shown to be biased toward men in leadership and in technology. Implicit bias is a significant factor in women's underrepresentation in tech.

PROMISING PRACTICES: Harnessing Data in Goal Setting

Gallup uses data analytics to accelerate progress in areas of employee engagement. Annual surveys and follow-up actions related to employee engagement lead to retention of employees.

Dell Technologies details their goals in the annual Corporate Social Responsibility Report. The Dell Culture Code drives how the business is run. Included are metrics related to supporting an inclusive work-place including a specific goal of engaging 40 percent of the global workforce in employee resource groups by 2020.

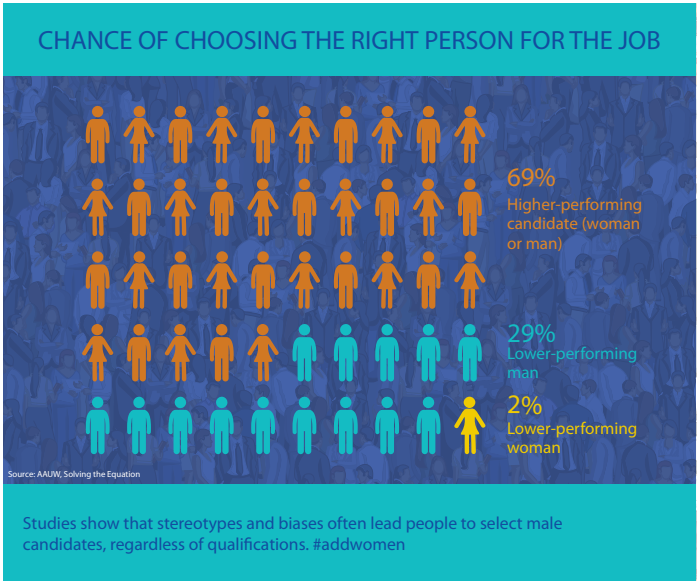
GE has announced a goal of 20,000 technical women by 2020. This includes a goal of hiring 50 perecnt women for all entry-level technical positions. #BalancetheEquation

Explore and address your own biases. We all have implicit biases that are in conflict with our conscious beliefs. Find out about your biases and learn practical tips for avoiding the mental shortcuts that can lead to unfounded judgments.

Ensure that everyone in the organization is educated about implicit bias and its impact on women's achievement. Allow open and honest discussion when biases are exhibited in the workplace.

3. ASSIGN MENTORS AND SPONSORS TO HELP REPRESENT WOMEN'S BEST INTERESTS.

Mentors and mentoring programs are helpful in providing advice and guidance. This is particularly helpful to women who are faced with difficult career decisions.



PROMISING PRACTICE: Implicit Association Testing

Biases, and the stereotypes on which they are based, are powerful obstacles for women seeking leadership positions. Researchers have found that stereotypes about leadership are decidedly masculine. Most people have some implicit bias about gender and gender roles. Even people who strongly value gender equity and would prefer to see more women in leadership positions may find that their implicit biases work against their intentions.

AAUW has collaborated with Project Implicit and Harvard University researchers to create a test that looks at the mental associations we make between gender and a variety of concepts, many of which affect our beliefs about women in positions of leadership.

- Take the test to understand if implicit biases are impacting you: AAUW Implicit Association Test on Gender and Leadership.

For advancing women within the organizations, sponsorships have been found to be more effective than mentorship-only programs. Sponsors should be high-level executives who are able to leverage their positions and power to advocate for women.[19, 20, 21]

Actively encourage and establish mentorship and sponsorship programs.

PROMISING PRACTICE: Mentorship at AT&T

AT&T harnesses the power of mentorship to help retain women in its technical workforce. Women who work in tech, including interns, are assigned a more senior employee mentor to help guide the way and be supportive.

4. UPDATE HUMAN RESOURCES POLICIES TO ENSURE THAT THEY CONTRIBUTE TO THE RETENTION AND ADVANCEMENT OF GENDER DIVERSITY.

Offer flexible schedules. Some jobs do require fixed times and places, but employers can change the default rules that govern offices and other workplaces so that all employees have the flexibility to work at times and places that mesh with outside responsibilities, including caregiving. Schedule conferences and important meetings during core working hours to accommodate employees' personal needs.

Focus on productivity, not face time. The notion that "face time" and frequent travel will prime employees to become effective leaders is misguided. When managers focus on and recognize employees' contributions rather than watch the clock, productivity and morale may improve.

---

[19] The Importance of Sponsors https://hbr.org/video/2226612760001/the-importance-of-sponsors

[20] Madsen, S. and Wambura Ngunjiri , F. (2015) Women as Global Leaders: Challenges & Strategies for Getting to the Top, https://www.researchgate.net/publication/295148524_Women_as_Global_Leaders_Challenges_Strategies_for_Getting_to_the_Top

[21] Ibarra, H., Carter, N., Silva, C. and MacLean, D. (2010) Why Men Still Get More Promotions than Women, http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=54625037&site=ehost-live

5. SET CLEAR WORK RULES, POLICIES, AND PROCEDURES AND REVIEW THEM WITH GROUPS OF EMPLOYEES WHO CAN OFFER A BROAD PERSPECTIVE. UNDERSTAND HOW THE UNWRITTEN RULES OF YOUR WORKPLACE SHAPE EMPLOYEE EXPERIENCE.

All organizations have unwritten rules of workplace behavior. In the technical professions these unwritten rules are often unclear to women, especially those who are new to the organization. For example, when sending emails, is it okay to copy your boss's boss?

Having an orientation process for new employees and an assigned mentor for employees in underrepresented groups can help individuals learn and understand these unwritten cultural rules and be more successful.

Also regularly review written work rules, policies, and procedures and seek feedback by a group of diverse employees on how these rules play out. For example, what happens if a parent has a sick child? Can the employee use sick pay or work from home, and will the unwritten rules penalize the employee?

6. DEVELOP TALENT WITHIN YOUR ORGANIZATION.

Research has shown that women succeed in male-dominated professions when they are provided with challenging, meaningful, and novel work.[22] Women leave these professions when they lack recognition and opportunities for advancement.[23]

Ensure that the work in which your highest-performing employees are engaged is challenging, meaningful, and provides continuous opportunities to learn and grow. Provide incentives for employees to take classes or to earn advanced degrees that will enable them to move up to higher positions. You already know the work habits and capabilities of your employees, so it is a win-win situation when potential leaders take on additional education. Support and encourage technicians or high-achieving operators to go back to school to earn undergraduate degrees in engineering or computing.

---

[22] Buse, K., Bilimoria D., and Perelli S. (2013) Why They Stay: Women Persisting in US Engineering Careers http://www.emeraldinsight.com/doi/abs/10.1108/CDI-11-2012-0108

[23] Fouad N., Chang W., Wan M., and Singh R., (2017) Women's Reasons for Leaving the Engineering Field http://journal.frontiersin.org/article/10.3389/fpsyg.2017.00875/full

Hosting competitions or hack-a-thons is an excellent method of developing talent. These fun and challenging events showcase skills in unique ways and provide visibility for talents not otherwise shown in the normal day-to-day workplace.

7. ENSURE THAT TEAMS AND OTHER GROUPS INCLUDE A CRITICAL MASS OF WOMEN.

Teams that are gender equal have been shown to be the most productive and innovative.[24, 25, 26] Gender-balanced teams are more innovative and creative than those that are men majority or women majority. Having teams that are 50 percent women are optimal but not practical in most work environments.

PROMISING PRACTICE: Stretch Assignments at GE Lighting

To give employees a chance to experience new challenges and build skill sets, GE Lighting provides 18- to 24-month "bubble assignments," short-term special projects that add variety and open opportunities. This approach also gives the company a chance to spot and cultivate talent.

Researchers have found that a critical mass of women (30 percent or at least 3 women) is important to empowering women to make a contribution. When the number of women in a given situation reaches a critical mass, issues of isolation and tokenism are significantly reduced or eliminated. Without critical mass, women are less able to articulate their ideas and find support for their contributions. Ensure that each team has 30 percent or at least 3 women.[27, 28]

[24] Thompson D. (2015) The Secret to Smart Groups: It's Women https://www.theatlantic.com/business/archive/2015/01/the-secret-to-smart-groups-isnt-smart-people/384625/
[25] Innovative Potential Men and Women in Teams (2007), London Business School https://www.lnds.net/blog/images/2013/09/grattonreportinnovative_potential_nov_2007.pdf
[26] Nielsen et al. (2017) Opinion: Gender Diversity Leads to Better Science DOI 10.1073/pnas.1700616114
[27] Torchia M., Calabro V., and Huse M. (2011) Women Directors on Corporate Boards from Tokenism to Critical Mass https://link.springer.com/article/10.1007%2Fs10551-011-0815-z?LI=true
[28] Women in Faculty and Administrative Roles https://eric.ed.gov/?id=EJ903472

PROMISING PRACTICE: Amplification

Women working in the Obama White House found that their voices were being ignored in important meetings. As a result, they adopted a strategy called "amplification." Other women would repeat a key point while giving credit to the woman who first said it. This tactic forced everyone to acknowledge the contribution. Further, it took away the opportunity for a man to claim the idea as his own, thus providing women with much-needed visibility for their contributions.

8. FOCUS ON THE MISSION OR PURPOSE OF THE ORGANIZATION.

Provide the support needed for all employees to recognize the importance of their work and how it fits into the organizational purpose and/or how it impacts society as a whole. Research has shown that women in particular yearn to contribute to the collective well-being of society using their engineering and computing skills.[29, 30] Expression of how the organization and or the specific project impacts communal goals has potential to align individual's goals with that of the organization. The understanding that one's day-to-day work supports communal goals and collaboration can positively impact the representation of women in engineering and computing.[31] Ensure that women are afforded the opportunity to work on essential, mission-critical projects and programs.

9. CONDUCT "STAY" INTERVIEWS.

Conduct stay interviews or have regular discussions with individual employees. This is especially important for high-potential employees the organization wants to retain. Use the interviews to understand how and what to do to keep women employees engaged because engagement leads to retention as well as positive business

[29] Carrigan C., (2017) Yearning to Give Back: Searching for Social Purpose in Computer Science and Engineering http://journal.frontiersin.org/article/10.3389/fpsyg.2017.01178/full

[30] Diekman A., et al. (2010) Seeking Congruity Between Goals and Roles: A New Look at Why Women Opt Out of Science, Technology, Engineering, and Mathematics Careers https://www.ncbi.nlm.nih.gov/pubmed/20631322

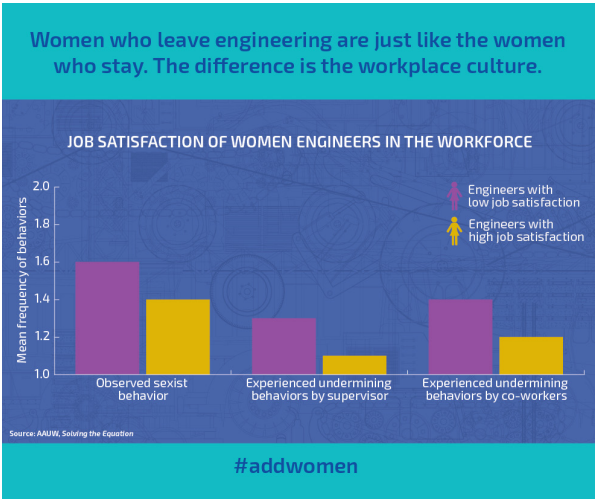
[31] Boucher , K. et al., (2017) Can I Work with and Help Others in This Field? How Communal Goals Influence Interest and Participation in STEM, http://journal.frontiersin.org/article/10.3389/fpsyg.2017.00901/full

results.[32] Research shows that business units with engaged employees exhibit 21 percent greater profitability than those with low engagement.[33]

Stay interviews can include such questions as, What do you look forward to when you come to work each day? What more would you like to learn? Do you believe that your work has meaning? How can we work together to make your work more meaningful? SHRM, the Balance, and Monster.com provide guidelines and detailed questions on conducting stay interviews.

10. EQUALLY DISTRIBUTE THE OFFICE HOUSEWORK.

Office housework has been described as those duties that every organization has but that typically fall outside of the lines of work responsibilities. Some examples include celebrating a safety milestone, individual achievements, or birthdays.



Greater responsibilities that may be categorized as office housework would include organizing the annual corporate giving campaign. These duties often fall on the women in the organizations.[34]

[32] Gallup Employee Engagement http://www.gallup.com/topic/employee_engagement.aspx
[33] Gallup http://news.gallup.com/businessjournal/208487/right-culture-not-employee-happiness.aspx?g_source=Business+Journal&g_medium=CardRelatedItems&g_campaign=tiles
[34] Sandberg S., and Grant A., (2015) Madam CEO Get Me a Coffee https://www.nytimes.com/2015/02/08/opinion/sunday/sheryl-sandberg-and-adam-grant-on-women-doing-office-housework.html

Leaders should be mindful of the amount of office housework within their organization and ensure that this type of work is equally distributed among the men and the women. Office housework takes time away from other work and is often perceived as unimportant in promotional considerations, thereby penalizing the women who take it on. Spreading it out keeps that effect from falling disproportionately on one employee or group of employees.

11. PROVIDE SUPPORT FOR THE BEHAVIORAL CHANGES NECESSARY FOR LEADERS AT ALL LEVELS.

Require leaders at the highest levels in the organization to be responsible for reviewing diversity metrics and identifying plans to achieve gender equity. [35, 36, 37] Allocate adequate funding to enable them to be successful in achieving the goals established by the metrics.

Detail the business case for change and make it visible by providing it directly to leaders at all levels, posting it on your internal website, and sharing it externally. Display the details of the business case and why your organization is changing to create and sustain an inclusive culture for all.[38, 39] Some organizations that include this information publicly are Google, Facebook, and Oracle.

Provide detailed employee communications on your plans using all resources including in-person conversations, streamed content, YouTube videos, bulletin boards, chat rooms, etc.

Provide ongoing development opportunities for leaders. It is important that leadership understands the importance of continuing to develop their own professional skills. Most important in retaining women, leaders should understand the impact of implicit bias on their employees and be encouraged to lead the efforts to mitigate the effects of that bias.[40]

---

[35] Balter et al., (2014) What Diversity Metrics are Best Used to Track and Improve Employee Diversity
[36] Project Include, Measuring Progress http://projectinclude.org/measuring_progress
[37] Society for Diversity Must Have Metrics http://www.societyfordiversity.org/5-must-have-metrics-for-diversity-inclusion-to-prove-roi/
[38] Turner C., The Business Case for Gender Diversity: Update 2017 http://www.huffingtonpost.com/entry/the-business-case-for-gender-diversity-update-2017_us_590658cbe4b05279d4edbd4b
[39] Why it Pays to Invest in Gender Diversity, The Atlantic 2016, http://www.theatlantic.com/sponsored/morgan-stanley-wealth-management-2016/why-it-pays-to-invest-in-gender-diversity/1001/
[40] Ibarra H., Ely R., and Kolb D., (2013) Women Rising the Unseen Barriers https://hbr.org/2013/09/women-rising-the-unseen-barriers

12. USE POSITIVE ORGANIZATIONAL DEVELOPMENT TECHNIQUES TO RECOGNIZE THE STRENGTHS OF INDIVIDUALS AND THE ORGANIZATION.

Engineering and computing workplaces often focus on finding the problems or the "bugs" and work to fix the problems. This tendency can spill over into how people are treated in these workplaces when leaders look for ways to "fix" those who are different instead of leveraging the strengths of diversity.

Employee engagement has been classified as a measure of positive organizational behavior.[41] Research shows that employee engagement that leads to positive business outcomes including employee retention[42] and specifically for women in engineering.[43, 44] The use of positive organizational development strategies such as appreciative inquiry can help leaders focus on individual and organizational strengths. Leaders can leverage these strengths to increase the representation of women in their organizations.

PROMISING PRACTICE: Appreciative Inquiry

Appreciative Inquiry (AI) leverages an organization's core strengths rather than seeking to overcome or minimize its weaknesses. AI is about a conscious choice to study the best of an organization concentrating on its positive core. AI is a change process rooted in a whole system approach to move toward positive organizational development.[45]

[41] Bakker A., and Schaufeli, W. (2008) Positive Organizational Behavior: Engaged Employees in Flourishing Organizations http://www.jstor.org/stable/30163401

[42] Harter J. and Mann A., (2017) The Right Culture Not About Employee Happiness, Gallup study http://www.gallup.com/businessjournal/208487/right-culture-not-employee-happiness.aspx?g_source=engagement+and+retention&g_medium=search&g_campaign=tiles

[43] Buse, K., Bilimoria D., and Perelli S., (2013) Why They Stay: Women Persisting in US Engineering Careers http://www.emeraldinsight.com/doi/abs/10.1108/CDI-11-2012-0108

[44] Buse K. and Bilimoria D. (2014) Personal Vision: Enhancing Work Engagement and the Retention of Women in the Engineering Profession http://journal.frontiersin.org/article/10.3389/fpsyg.2014.01400/full

[45] Cooperrider D., What is Appreciative Inquiry http://www.davidcooperrider.com/ai-process//

13. ENSURE THAT MEANINGFUL AND CHALLENGING WORK IS PROVIDED.

Studies show that women leave the engineering and computing professions because they lack advancement opportunities and meaningful work.[46, 47] Men in engineering are more likely than their female colleagues to be assigned work projects that are challenging; women are more likely to have work that is tedious and routine.[48] To retain women ensure that work provides ongoing challenges and opportunities to continue to build skills.

14. PROVIDE PROFESSIONAL DEVELOPMENT FOR WOMEN TO BUILD SPECIFIC SKILLS AND TO OVERCOME WORKPLACE BARRIERS.

Organizations that invest in their women employees have higher retention and advancement rates. Professional development for women should include recognizing and overcoming workplace barriers and bias, developing higher levels of self-confidence, and navigating organizational politics.

As women move into leadership roles their ability to develop as a leader includes understanding how their gender impacts their achievement.[49] Recognizing the impact of implicit biases with supported experiences will help women be more successful in new leadership roles.

15. WORK WITH WOMEN ON A PERSONAL CAREER STRATEGY.

Researchers have found that women's career decisions are part of a large and intricate web of interconnected issues and people.[50] Women's career patterns are different from those of their male colleagues due to workplace biases and the likelihood that women are the primary caregivers.[51] Articulating a personal vision that includes a career leads to career commitment and work retention

---

[46] Fouad et al., (2017) Women's Reasons for Leaving the Engineering Field http://journal.frontiersin.org/article/10.3389/fpsyg.2017.00875/full#B20

[47] Frehill, L. (2008) Why do women leave the engineering work force http://www.nxtbook.com/nxtbooks/swe/winter08/index.php?startid=24

[48] Seron et al. (2016) Persistence is Cultural: Professional Socialization and the Reproduction of Sex Segregation DOI 0.1177/0730888415618728

[49] Ibarra H., Ely R., and Kolb D., (2013) Women Rising the Unseen Barriers https://hbr.org/2013/09/women-rising-the-unseen-barriers

[50] Mainiero L. and Sullivan S., (2005) Kaleidoscope careers: An alternate explanation for the "opt-out" revolution doi: 10.5465/AME.2005.15841962

[51] Mainiero L. and Sullivan S., (2008) Using the Kaleidoscope Career Model to Understand the Changing Patterns of Women's Careers: Designing HRD Programs that Attract and Retain Women http://journals.sagepub.com/doi/abs/10.1177/1523422307310110

PROMISING PRACTICE: Salary Negotiation Training

Employees should learn and practice negotiation skills to ensure that salaries and benefits start and stay fair. Understanding how and when to negotiate salaries or other benefits can help women take control of their own development and identify opportunities for achievement. Salary negotiation training can teach women effective techniques to negotiate their salary and benefits at different stages of their careers, including internal promotions.

for technical women.[52] Ensure that women in your organization have a personal career strategy and offer support for women on how to develop one. Many organizations already have employee development plans in place. Individuals can use guides to help develop their own strategy.[53, 54]

Help employees plan for potential career interruptions. Although women are still more likely than men to handle housework and caregiving, men are increasingly taking on these roles. Taking time out of the workforce can be the right decision for both men and women.

16. BUILD AND SUPPORT COHORTS OF WOMEN.

Women leave the technical professions because they feel isolated and marginalized in the male culture.[55] Establishing and supporting cohorts of women

[52] Buse K. and Bilimoria D. (2014) Personal Vision: Enhancing Work Engagement and the Retention of Women in the Engineering Profession http://journal.frontiersin.org/article/10.3389/fpsyg.2014.01400/full
[53] Clark D., (2012) A Campaign Strategy For Your Career http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=82532445&site=ehost-live
[54] McKee et al., (2008) Becoming a Resonant Leader https://hbr.org/product/becoming-a-resonant-leader-develop-your-emotional-intelligence-renew-your-relationships-sustain-your-effectiveness/an/1734-PBK-ENG
[55] Hewlett et al. (2008) The Athena Factor: Reversing the Brain Drain in Science, Engineering and Technology https://www.researchgate.net/publication/268325574_By_RESEARCH_REPORT_The_Athena_Factor_Reversing_the_Brain_Drain_in_Science_Engineering_and_Technology
[56] Stout J. et al., (2017) The Grad Cohort Workshop: Evaluating an Intervention to Retain Women Graduate Students in Computing http://journal.frontiersin.org/article/10.3389/fpsyg.2016.02071/full

has been shown to increase retention of women in male-dominated environments.[56] Knowing that others share the same difficulties and working together to overcome these difficulties have been shown to increase retention.[57] Having role models and positive affirmations increases employees' belief in themselves

PROMISING PRACTICE: Female Leadership at Oracle

Oracle's Women Leadership initiative supports the continuing growth of the company's current, emerging, and future generation of women leaders. The initiative is sponsored by Oracle's senior management and promotes women's leadership and professional development across the globe.

HOW CAN MEN HELP?

Because they make up the majority of workers and leaders in the technical organizations, men play important roles in creating the workplace climate and in recruiting and influencing prospective professionals.

- Seek opportunities to serve as a role model for girls and young women considering careers in computing, engineering, and tech.
- Become aware of the gender representation at every meeting, conference, and presentation. Refuse to participate on all-male conference panels or presentations. Encourage leaders or conference organizers to invite women to present. Encourage women to present.
- Share with students at all levels how your job specifically works with and helps people.

[57] Frieze C. and Quesenberry J. (2015) Kicking Butt in Computer Science

to achieve. More than 33,000 Lean In Circles have been created in recent years, and 85 percent of members say that their circle has led to a positive change in their life including negotiating for a larger salary and obtaining a promotion.[58]

Employee Resource Groups (ERGs) are voluntary, employee-led groups within organizations that connect underrepresented populations. ERGs can provide opportunities for leadership and offer visibility that may not be found elsewhere. Some examples include Progressive's Network of Empowered Women, GE's Women's Network, and Dell Women in Action.

[58] Lean In Circles https://leanincircles.org/?_ga=2.199410477.2021829997.1503413463-1465643748.1503413463

[CONCLUSION]

The *Playbook on Best Practices: Gender Equity in Tech* is a compilation of strategies and actions that organizational leaders can undertake to measurably increase the number of women in their organizations.

By assessing ourselves and enacting research-backed strategies, we can work together to accelerate the rate of change and break through barriers for women in the workplace.

[CONTRIBUTORS]

RESEARCH AUTHOR

Kathleen Buse, Ph.D.

AAUW PARTNERSHIPS TEAM

Nicole Evans

Emma George

DELL TEAM

Jeremy Ford

Jessica Anderson

SUMMIT ON GENDER EQUITY IN TECH PARTICIPANTS

Dell

AT&T

BAE Systems

Gallup

GE

Google

Lyft

Oracle

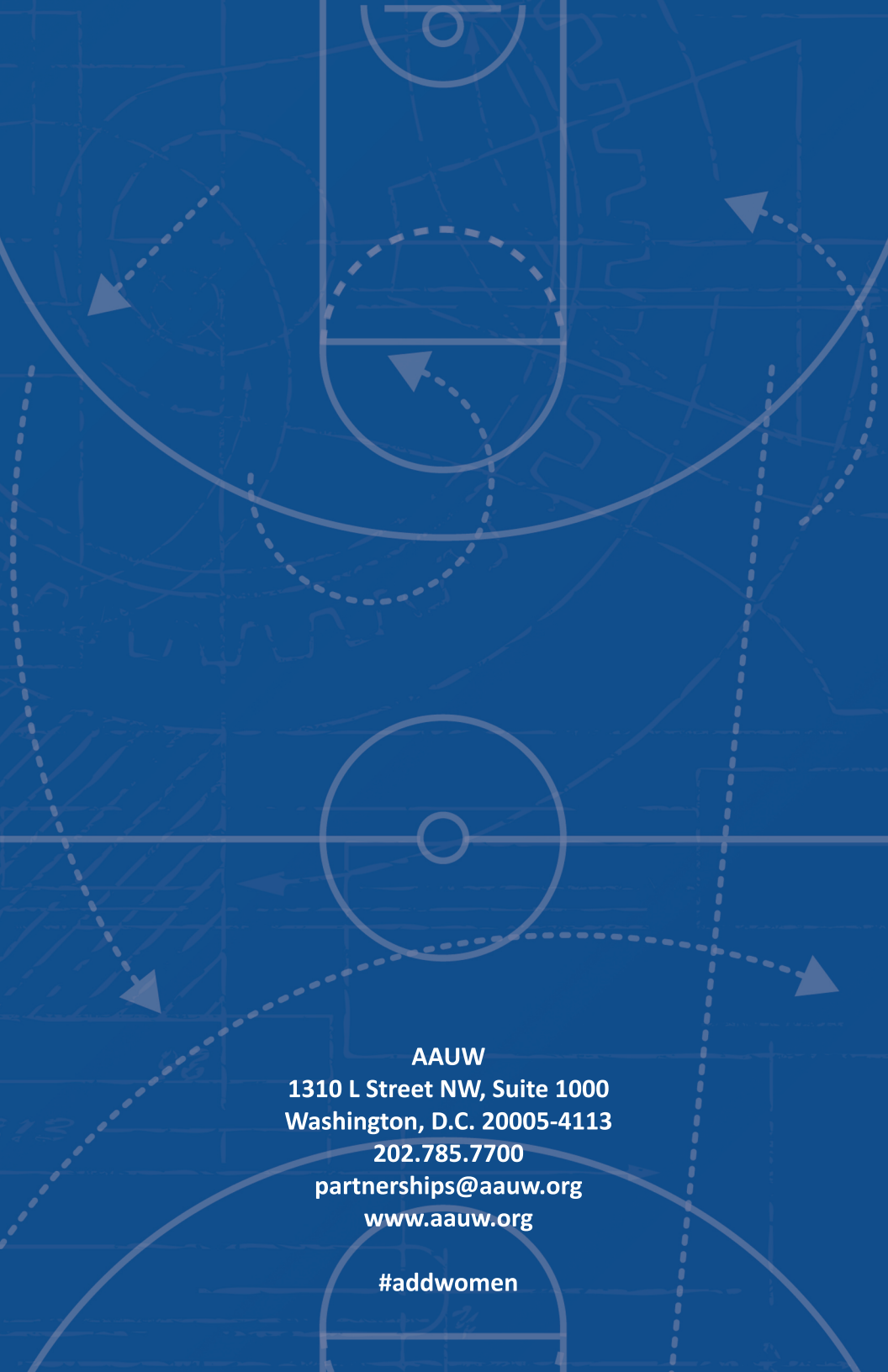
Olaris Therapeutics

Progressive Insurance

Symantec

Verizon

The Washington Post



AAUW
1310 L Street NW, Suite 1000
Washington, D.C. 20005-4113
202.785.7700
partnerships@aauw.org
www.aauw.org

#addwomen